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Angina rehabilitation: exercise is not enough

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Abstract

Stable angina (a symptom of heart disease) is very common across the world. Cardiac rehabilitation reduces cardiac mortality by up to 26%, but is not routinely offered to people with angina. In addition, common misconceptions about living with angina are stronger predictors of future physical and psychological functioning than severity of the underlying condition. As people with angina have higher risk of anxiety and depression, exercise-based rehabilitation is not enough – there is a need for angina rehabilitation that includes psychological treatments and counselling to dispel misconceptions. This paper discusses the effects on outcome of such cognitive behavioural angina rehabilitation programmes.

Keyword: Angina; rehabilitation; counselling; cognitive behavioural.

1. Introduction

Stable angina is a form of chest pain brought on by exertion or emotion, and is a symptom of coronary artery disease (CAD). It affects many people across the world with prevalences reported of up to 15% (Hemingway et al., 2008) and although the impact of angina varies for each individual, over half of all sufferers have symptoms that cause severe limitation of activities and often lead to their premature retirement (Fox et al., 2006). Over the past two decades, an increasing method of treatment for people with stable angina is to have coronary revascularisation with percutaneous coronary angioplasty (PCI). This pathway for people with angina follows the biomedical model of care.

This paper will outline the evidence against using a biomedical model of care and instead promotes the use of a biopsychosocial model for care for people with angina, incorporating optimal medical therapy with cognitive behavioural cardiac rehabilitation.

2. Evidence base and main argument

2.1 The biomedical model is inadequate

In the biomedical model of medical care, there is a firm belief that a biological impairment (lesion, virus, chronic condition) "causes" disability, so if you "mend" the impairment, you will restore the patient to health. This viewpoint was held within the 1980 version of the World Health Organisation Classification of Diseases (Wood, 1980) - that impairment is directly correlated to disability. But it does not follow; there is no correlation between the severity of a chronic illness and the degree of disability that someone will exhibit (B . Lewin, 1997). For

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example, in people with angina, angiographic studies have shown that severity of coronary arterial disease has no correlation with report of chest pain (Arnold et al., 2009; Smith, Follick, & Korr, 1984). Therefore, treating the coronary artery lesions will not necessarily result in better outcome.

This is borne out by results of recent large studies of the effect of different treatments for stable CAD (COURAGE (Boden et al., 2007) and BARI-D (Chaitman et al., 2009)) and a meta-analysis (Schomig et al., 2008) which all suggest that, in patients with stable angina and compared to optimal medical therapy, PCI has no benefit on outcomes of mortality, non-fatal myocardial infarction (MI - heart attack) or acute coronary syndrome. Indeed, while PCI does have an early benefit in reducing symptoms in stable angina; by 5 years after diagnosis there is no difference in symptom load between people following PCI or those treated with optimal medical therapy (Boden et al., 2007). Medical therapy was found more cost-effective in both BARI-D (Hlatky et al., 2009) and an observational analysis of revascularisation therapies concluded "the clinical benefit of percutaneous coronary intervention may not be sufficient to justify its cost" (Griffin et al., 2007, p. 1) .

These findings suggest that optimal medical therapy should be the first option for treatment in people with angina. Optimal medical therapy does not only include pharmacological treatments, but also needs to address behavioural risk factors in order to reduce the chance of future coronary events. Cardiac rehabilitation is a structured programme of care to promote physical and psychological well-being and to slow the progression of heart disease (R. J. P. Lewin et al., 2009). There have been over 48 randomised controlled trials (RCTs) of cardiac rehabilitation, and the most recent systematic review of these found that, for people with CAD attending rehabilitation, there was a 20% reduction in all-cause mortality and a 26% reduction in cardiac mortality (Taylor et al., 2004). Compared to PCI and heart surgery, it is a cheap but very effective intervention. However people with stable angina are often missed from invitations to cardiac rehabilitation programmes; in a recent UK report less that 4% of people with angina were reported to have attended cardiac rehabilitation (R. J. P. Lewin et al., 2009).

2.2 Biopsychosocial cardiac rehabilitation

Originally cardiac rehabilitation followed a biomedical model and consisted solely of an exercise programme; it was believed that, as the heart was a muscle, exercise would help to strengthen it. However, at a symposium of the International Society of Cardiology, it was noted that, although many people did get fitter with exercise rehabilitation, many continued to have reduced quality of life – psychological and social aspects of care needed to be included (Council on Rehabilitation, 1973), thus producing a rehabilitation programme that followed a biopsychosocial model. Modern guidelines for cardiac rehabilitation promote this more holistic approach in recognition that people with heart disease, including angina, have increased levels of anxiety and depression when compared to the general population (British Association for Cardiac Rehabilitation, 2007; European Society of Cardiology and Other Societies Task Force on Cardiovascular Disease Prevention, 2007; Scottish Intercollegiate Guidelines Network, 2002).

2.3 What people believe about their heart disease has profound effects on how they manage.

In 1967, it was noted that a major reason why people did not return to work following a heart attack was due to a faulty understanding of their condition (Wynn, 1967). Further research in Norway in the 1980s also indicated that, in people post-MI, misconceptions about their condition and how to cope were significant predictors for return to work, perceived global health expectations of autonomy post heart attack and were more likely to be rehospitalised for suspected heart attacks, most of which proved to be false alarms (Havik & Maeland, 1987; Maeland & Havik, 1987, 1988, 1989).

2.4 Evidence for the effect of beliefs in people with angina

In a 12-month prospective study, 133 people completed a questionnaire designed to elicit common misconceptions about angina, in addition to measures of functioning and quality of life. Positive associations were observed between angina misconceptions and symptom load, poor functional and poor psychological status. In regression models that included baseline demographic variables, change in angina beliefs was the most significant predictor for physical limitations at one-year follow-up, whereas change in symptom severity did not make a

significant contribution to the model (Furze, Bull, Lewin, & Thompson, 2003; Furze, Lewin, Murberg, Bull, & Thompson, 2005)

This finding has been replicated in a further recent longitudinal study of 434 people with CAD who completed questionnaires at baseline and three months. Measures included: demographics, disease severity, York Cardiac Beliefs Questionnaire (YCBQ), Godin Leisure-time Exercise (GLE) and Vigorous Activity (GVA) questionnaires, Hospital Anxiety and Depression Scales (HADS). Analysis was by ANOVA and multiple regression to examine the effect of misconceptions on activity levels. The study found that people who were 'never vigorously active' held more misconceptions than those who were 'sometimes' or 'often' active (p=0.001). In a regression model including baseline measures of; misconceptions, demographics, disease severity and HADS scores; misconceptions were the most significant predictor for GLE 3-months later (beta=-0.178, p=0.002) (Furze, Lewin, & Weinman, 2009).

Having elicited misconceived and /or maladaptive beliefs about living with angina, we need to use an evidence-based approach to dispelling them. A recent systematic review of interventions to change maladaptive illness beliefs in people with CHD found 13 RCTs which met the inclusion criteria. Although quantitative analysis was not possible due to heterogeneity between the studies, the narrative review found that cognitive behavioural and counselling / education interventions appeared particularly effective in changing maladaptive illness beliefs (Goulding, Furze, & Birks, 2010). Thus, successful cardiac rehabilitation needs to address not only people's behaviour and psychological concerns, but also their beliefs about living with heart disease – a cognitive behavioural approach

2.5 Cognitive behavioural angina rehabilitation

Rehabilitation programmes based on a cognitive behavioural approach fully address the biopsychosocial model, and have been found to be effective and cost effective. Cognitive behavioural rehabilitation programmes include counselling to dispel misconceptions and goals are set to manage and reduce the impact of the condition. There are few examples of cognitive behavioural angina rehabilitation within the literature; two such are the Angina Management Programme (B Lewin et al., 1995) and the Angina Plan (R. J. P. Lewin et al., 2002).

The Angina Management programme (AMP) is a hospital-based rehabilitation programme based on cognitive behavioural principles, and targets psychological and behavioural factors to promote improved self-management of angina. In a randomised cross-over study, 80 patients were randomly allocated to the AMP or a waiting list control group with subsequent crossover to treatment. They attended the hospital in small groups on two mornings a week for 8 weeks. The treatment consisted of; exercise, stress management, health education and cognitive-behavioural counselling treatments to reverse damaging beliefs and coping strategies, anxiety, depression and panic. This produced a 70% reduction in the self report of episodes of angina, a 65% reduction in the use of nitrates and a 72% reduction in self reported disability. Exercise tolerance testing (ETT) showed a 57% improvement in exercise tolerance and a 30% improvement in time to 1 mm ST depression. These improvements were observed at 4 months and 1 year follow-up. Of the patients who were awaiting heart surgery, 13 (50%) were subsequently removed from the elective surgery list following an independent review by their cardiologists (B Lewin et al., 1995).

In the AMP study, the patients had been diagnosed with angina for a mean of 5 years, and questioned why they had not been given such help on diagnosis – to prevent the levels of disability that they had subsequently suffered. In addition, we noted that group rehabilitation programmes could not routinely include people with angina due to lack of resources. The Angina Plan (AP) was developed for use in primary care as a brief, home-based, cognitive behavioural rehabilitation programme for people with newly diagnosed stable angina. It consists of a 70 page patient manual and a relaxation programme on CD, and is facilitated by a health professional in a 45 minute first interview where misconceptions are dispelled and goals for behaviour change set with the patient, followed by 4 further brief contacts by phone or face-to-face. In an RCT involving 142 patients recruited from 20 GP practices we compared the AP to a nurse-led educational session. At six months the patients who had used the AP reported 43% fewer episodes of angina (p=0.016), less physical limitation and a lower level of anxiety and depression. The AP group were also more likely to report having changed their diet (P<0.001) and increased their daily walking (P<0.001) (R. J. P. Lewin et al., 2002).

This programme can be very flexible and fit into different clinical care pathways. For example the Angina Plan programme has also been tested in an RCT in secondary care for patients hospitalised with angina, and produced similar results (Zetta, Smith, Jones, Allcoat, & Sullivan, 2009) and has been adopted as part of the regime at the UK

National Refractory Angina Centre in Liverpool where it has produced major cost benefits, in addition to reductions in morbidity and improvements in symptom report and quality of life (Moore et al., 2007). We have just completed an RCT of lay facilitation of the Angina Plan and results show that, while lay facilitation does not have such profound effects as professional facilitation, it does produce worthwhile reductions in anxiety and depression at six months follow-up and improvements in activity levels at three months follow-up and is cost-effective (Furze, Cox et al., 2009).

3. Conclusion

Treatments for stable angina that are based on the biomedical premise of curing disability by treating the lesion have been shown to lack efficacy and cost-effectiveness. People with angina should be offered optimal medical therapy that includes cardiac rehabilitation; however, these programmes need to be based on cognitive behavioural principles that include counselling to dispel cardiac misconceptions. The Angina Management programme and the Angina Plan are examples of such programmes that have been found to be effective and cost effective, and which fit easily into the clinical pathway.

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